



UNITED STATES PATENT AND TRADEMARK OFFICE

CEW

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,972	12/29/2005	Yasuhiro Miyamoto	Q92215	3619
23373 7590 11/01/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER MULLINS, BURTON S	
			ART UNIT 2834	PAPER NUMBER
			MAIL DATE 11/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,972

Applicant(s)

MIYAMOTO ET AL.

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/05
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 29 December 2005 has been considered by the examiner.

Response to Amendment

3. The preliminary amendment filed 29 December 2005 has been entered.

Drawings

4. Figures 3a and 3b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: References to specific claims should be deleted since the claims may be amended and re-numbered during prosecution. Also, in the description of drawings, p.9, specific reference to Figs.1a-1b and 3a-3b should be made, rather than to "Fig.1" and "Fig.3". Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitation "guide blocks" in claim 4 lacks antecedent basis. Recitation "the two linear guides" in claim 5 lacks antecedent basis. Further, "a stopper mechanism is provide at each of four ends of the two linear guides in parallel" is indefinite since it is not clear what the phrase "in parallel" means or modifies. For purposes of examination it will be assumed that claims 4-5 each depend from claim 3 (which recites "two linear guides" and respective "guide blocks").

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-116105 (JP '105). JP '105 teaches a moving magnet type linear actuator comprising: a stator having a stator base and an armature (Fig.2) including a magnetic iron core 3 fixed on the stator base 11 and an armature winding 12 wound around the magnetic iron core; and a movable body 13 (Fig.12) having a field permanent magnet 14/15 arranged oppositely to the magnetic iron core 3 through a magnetic gap 9 (Figs.1&2) and a magnetic holder 41/42/43 (Fig.12) supporting the field permanent magnet 14/15 and movably arranged on the stator base, wherein the magnetic holder is made of a non-magnetic substance (inherent), a magnetic back yoke 1 (left & right parts, Fig.2) is arranged on the side opposite to the armature with respect to the field permanent magnet (Figs.1&2), a width thereof being approximately equal to a width of the field permanent magnet (Fig.1), a length thereof being not smaller than the stroke of the movable body (Fig.2), and both ends thereof in the longitudinal direction being fixed to the stator (i.e., one end of each left and right yoke 1 is fixed to stator; Fig.2), and a gap 9 is formed between the magnetic yoke 1 and the field permanent magnet 14/15 (Figs.1&2).

Regarding claim 7, as seen in Fig.1, the yoke 1 comprises laminated plates.

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Korenaga et al. (US 6,037,680). Korenaga teaches a moving magnet type linear actuator comprising: a stator (fixed

unit; Fig.1) having a stator base (not shown, inherent since stator is 'fixed') and an armature 10 including a magnetic iron core (center yoke) 6 fixed on the stator base and an armature winding 8/9 wound around the magnetic iron core 6; and a movable body (stage) 2 having a field permanent magnet 5 arranged oppositely to the magnetic iron core 6 through a magnetic gap (Figs.1-3&4C) and a magnetic holder (holding plates) 4 supporting the field permanent magnet 5 and movably arranged on the stator base, wherein the magnetic holder is made of a non-magnetic substance (inherent), a magnetic back yoke (side yoke) 7 is arranged on the side opposite to the armature with respect to the field permanent magnet (Figs.1-3&4C), a width thereof being approximately equal to a width of the field permanent magnet (Figs.1-3&4C), a length thereof being not smaller than the stroke of the movable body (Figs.1-3), and both ends thereof in the longitudinal direction being fixed to the stator (Figs.1-3), and a gap is formed between the magnetic yoke 7 and the field permanent magnet 5 (Figs.1-3&4C).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korenaga in view of JP 2000-308328 (see discussion of JP '328 on pp.1-3 and Figs.3a-3b of specification). Korenaga teaches applicant's invention but does not teach a scale fixed to the magnetic holder, and a detecting segment fixed to the stator base (claim 2); or two linear guides arranged in

parallel so as to sandwich both sides of the armature, guide blocks are arranged on each of the linear guides, and the magnetic holder fixed on the guide blocks (claim 3).

JP '328 teaches a scale segment of a linear scale 53 fixed to the side of a magnetic holder (yoke) 23 of the movable body 20, and a detecting segment 52 of the linear scale is fixed to the stator base 31 with a gap from the scale segment 53 (specification p.3; Figs.3A-3B). Further, two linear guides 41 are arranged in parallel so as to sandwich both sides of the armature 32 (Fig.3B), guide blocks 42 are arranged on each of the linear guides 41, and the magnetic holder (yoke) 23 is fixed on the guide blocks for forcibly stopping the running of the actuator at either end thereof (specification p.3; Figs.3A-3B).

It would have been obvious to modify Korenaga and provide a scale and detector per JP '328 to detect the position of the movable body, and to provide linear guides and guide blocks per JP '328 to forcibly stop the running of the actuator at either end thereof.

Regarding claim 4, Korenaga Fig.3 shows that the non-magnetic holder 4a includes a square cut out or slot for the magnet 5. The width of the slot would correspond to the space between the guide blocks of JP '328 since these would be arranged between the yokes 7, which surround the armature, the latter having generally the same width as the magnet 5 (Korenaga, Fig.3).

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Korenaga and JP 2000-308328, in view of Tsuboi et al. US 2001/0048249. Neither Korenaga nor JP '328 teach stoppers on the linear guides.

Tsuboi teaches stoppers 18, 20 (Figs.1-2) at each end 17, 19 of linear guides, thereby acting as buffers for protecting slider 6 from collision [0051].

It would have been obvious to modify Korenaga and JP '328 and provide stoppers per Tsuboi to protect the slider from collision.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Korenaga in view of Hwang et al. (US 6,528,907). Korenaga teaches applicant's invention but does not teach guide pipes in the stator for cooling refrigerant.

Hwang teaches a linear motor with a stator 54 and stator coils 53, the stator having guide pipes (cooling channels) 7 for forcible cooling refrigerant (e.g., air) embedded in the stator base (back plate) 50 (Fig.8; c.4:50-63). The cooling channels provide effective cooling of the stator (c.1:60-64).

It would have been obvious to modify and provide a stator with guide pipes per Hwang to cool the stator.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

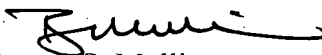
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029.

The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/562,972
Art Unit: 2834

Page 8

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
26 October 2007

